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Implications for National Security in
Developing Countries**

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FOOD SECURITY: POLICY OPTIONS AND IMPLICATIONS FOR NATIONAL SECURITY IN DEVELOPING COUNTRIES

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Introduction

Food is an important commodity. It is required by all living organisms for the maintenance of life. It is, however, like any other commodity whose production is determined by a market. Food is derived from the use of natural resources such as land, minerals, water, and genetic material. These natural resources are often of strategic importance, primarily because they cannot be renewed. They represent the primary assets of a country and in that sense are strategic. Thus, the quality and size of a country's natural resources are of crucial importance in the production of food and in the formulation of a food security strategy.

In addition, food has substantial political importance because it is usually the cornerstone of a nation's agricultural policy. It has been used as a rallying call for financial support to farmers and as an argument for government control of food supplies and marketing. Thus, access to food at an affordable price, as well as being an economic issue, is a political issue because the survival of governments often depends on their perceived capacity to provide consumers with access to food.

Consequently, national governments in many countries have passed wide-ranging laws to ensure food supplies for their people. They have occasionally taken steps to deprive specific groups in the population of food. They have also waged war for access to food. In addition, the international community has agreed in the past to complex arrangements to manage food supplies and prices.

This paper will outline the views of the World Bank on food security issues in developing countries. I will show that while food security problems directly affect millions of people in developing countries, it is a problem that in most circumstances can be successfully and cost effectively tackled. Therefore, food insecurity or hunger need not be a national security issue in developing

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countries. On the other hand, lack of attention to food security problems is likely to lead to a deterioration in human capital with detrimental effects on long-term growth. The fundamental solution lies in increasing the poor's real income as well as reducing income variability, improving food trade and marketing and distribution methods through effective policies.

Perspectives and Definitions

The world has ample food. Global food production has grown at a faster rate than the unprecedented population growth of the past forty years. Cereal prices on world markets have trended down, which suggests that in these markets there have been no significant long-run pressures on supplies. At the same time, hundreds of millions of poor people do not have the capacity to purchase sufficient food; they suffer from a lack of food security, mainly caused by a lack of purchasing power.

Food security is defined as access by all people at all times to enough food for an active, healthy life. There are two kinds: chronic and transitory. Chronic food security problems are caused by a continuously inadequate diet due to the lack of resources or entitlements to acquire food. It affects people who persistently lack the ability either to buy enough food or to produce their own. Transitory food security problems, on the other hand, are due to a temporary decline in a person's access to sufficient food. It results from instability in food production, food prices, or income. The worst form of transitory food insecurity is famine.

The cost of inadequate diets to individuals and to nations are substantial. Inadequate diets increase vulnerability to disease and parasites, reduce strength for tasks requiring physical effort, curtail the benefit from schooling and training programs, and result in a general lack of vigor, alertness, and vitality. To this extent, inadequate diets may, if pervasive, endanger national security by reducing productivity and making it more difficult for nations to grow and extract themselves from poverty.

Chronic Food Security Problems

Magnitude of the Problem

In 1980 between 340 million and 730 million people in the developing countries (excluding China) did not have incomes which allowed them to obtain sufficient calories from their diet. The estimate of 340 million is based on a calorie requirement that would prevent serious health risks and stunted growth in children. If the requirement is enough calories for an active working life, however, the estimate of those with chronically deficient diets rises to 730 million. This higher figure is probably a better guide to the harm done to human development by inadequate diets. As table 1 shows, about two-thirds of the undernourished live in South Asia and one-fifth in sub-Saharan Africa. In all, four-fifths of the undernourished live in countries with very low average incomes.¹

1. Estimates provided by Shlomo Reutlinger.

Table 1: SHARE AND SIZE OF POPULATION WITH ENERGY-DEFICIENT DIETS, 1980

Region / ^a	Population with energy deficient diets			
	Below 90% of		Below 80% of	
	FAO/WHO requirement / ^b		FAO/WHO requirement / ^c	
	Share in population (percent)	Population (millions)	Share in population (percent)	Population (millions)
All developing Countries (87) / ^d	34	730	16	340
Low-income (30) / ^e	51	590	23	270
Middle-income (57)	14	140	7	70
Sub-Saharan Africa (37)	44	150	25	90
East Asia and Pacific (8)	14	40	7	20
South Asia (7)	50	470	21	200
Latin America and Caribbean (24)	13	50	6	20
Middle East and North Africa (11)	10	20	4	10

/^a The eighty-seven countries had 92 percent of the population in developing countries in 1980, excluding China.

/^b Intake at this standard is sufficient to function at full capacity in all daily activities.

/^c Intake at this standard is sufficient to prevent high health risks and growth retardation in children.

/^d Numbers in parenthesis are the number of countries in the sample.

/^e The low-income countries have a per capita income below \$400 in 1983.

There will always be a controversy about the absolute number of people facing chronic food security problems because of different views on data and adequacy standards. It is therefore probably more useful to assess changes between two points in time. The share of people with inadequate diets declined between 1970 and 1980 for developing countries as a group—under the optimistic assumption that income distributions did not change during the 1970s. (See table 2.) Yet, because of population growth, the number of people with inadequate diets appears to have increased. The largest declines in shares and numbers were in East Asia and the Middle East, regions that enjoyed rapid economic growth during this period. South Asia and sub-Saharan Africa, on the other hand, had slight increases in the share of the population with deficient diets, but had large increases in absolute numbers.

The estimated number of food insecure populations is large and unacceptable. It is, however, interesting that the aggregate energy deficit in their diets amounts to only a small fraction of the total national food supply in many countries. In a sample of thirty-five developing countries, the aggregate deficit amounts to no more than 3 percent of current aggregate consumption even when the higher adequacy standard is applied. The clear implication is that insufficient effective demand, rather than food scarcity, is the central food

Table 2: CHANGES IN THE PREVALENCE OF ENERGY-DEFICIENT DIETS,
EIGHTY-SEVEN DEVELOPING COUNTRIES, 1970-80

Region	Not enough calories for an active working life: below 90 percent of FAO/WHO requirement		Not enough calories to prevent stunted growth and serious health risks: below 80 percent of FAO/WHO requirement	
	Change in share of population	Percentage change in number of people	Change in share of population	Percentage change in number of people
All developing countries (87)	-0.06	+10	-0.02	+14
Low-income (30)	+0.04	+41	+0.03	+54
Middle-income (57)	-0.18	-43	-0.09	-44
Sub-Saharan Africa (37)	+0.01	+30	+0.04	+49
East Asia and Pacific (8)	-0.27	-57	-0.14	-57
South Asia (7)	+0.03	+38	+0.02	+47
Latin America and Caribbean (24)	-0.07	-15	-0.04	-21
Middle East and North Africa (11)	-0.25	-62	-0.14	-68

security problem. Of course, for some countries, for example, Bangladesh and many African countries, the aggregate deficit is much more serious.

Policy Options

The ultimate solution for those with chronic food security problems is to provide them with adequate incomes while ensuring that food supplies (domestic production or imports) are available. In many countries, particularly those where the number of chronically food-insecure is large, for example, India, the most direct strategy is to accelerate the growth of agriculture. The agricultural sector in those countries is so large that any neglect of opportunities for agricultural growth jeopardizes overall economic development and with it the possibility of providing gainful employment to the growing population and the ability to provide all people with access to adequate amounts of food. The point, however, is not that more food production is needed.

To the contrary, any form of agricultural output that leads to growth in income will be a step in the right direction for food security.

For economies with a less important agricultural sector, any policies that raise the incomes of the poor while increasing overall economic growth should be given high priority. After all, such policies can reduce or even eradicate chronic food insecurity without imposing a cost on the economy. This may sometimes be achieved by shifting resources from capital-intensive to labor-intensive activities or from industry to agriculture, and by removing price and trade interventions which reduce incentives to farmers for increasing their output.

In many developing countries, however, growth strategies require time to take hold and often more immediate steps are needed. Moreover, benefits from growth often trickle down slowly and usually unevenly. The objective should be to design cost-effective programs for addressing the short-term problems. Possible strategies inevitably involve some type of intervention and all involve a trade-off between coverage, efficiency, and administrative costs. The options which are likely to be most cost-effective are (a) targeted income transfers, (b) general consumer subsidies, and (c) food supply policies.

Targeted Income Transfers

A well-known example of a targeted income transfer is the rationing of food to a specific group of people at below-market prices through "fair-price shops." Such interventions mostly aid urban dwellers and households that normally buy their food, or that have easy access to fair-price shops. Another example is public employment programs such as "food for work," which favors those who can get to the employment site. Other targeted income transfers include direct cash transfers or subsidized farm inputs. The difficulty with most of these interventions, however, is in avoiding leakage of the transfer payments to unintended beneficiaries. Efforts to target the benefits more accurately will reduce the fiscal cost of the transfers, but they raise, often steeply, the administrative costs and the required administrative skills.

General Consumer Subsidies

One way to overcome difficulties in targeting subsidies is to reduce prices of foods typically consumed by poorer groups without reducing payments to producers. Subsidizing the food prices for all consumers is more costly for the government budget than subsidizing food prices for targeted groups. Subsidies generally require heavy government involvement in the wholesale food trade. The government must manage a two-price scheme—a higher price to the producers and a lower price to consumers. In addition, there are other issues. For example, it must be possible to physically distinguish the food sold to consumers from the food bought from farmers.

Food Supply Policies

Policies aimed at increasing food supply through domestic production or imports must either increase the incomes of the food-insecure or reduce food prices. In examining the prospects for such changes, it is important to

distinguish between foods that are traded internationally (their price being determined by the world market and the exchange rate) and nontraded internationally (their price being determined by the quantity produced domestically).

The difference is important. For example, an increase in the supply of a traded food (through increasing imports or restricting exports) will lower its price and reduce domestic production. Whether this is good for food security depends on whether the food-insecure are predominantly the food consumers or the producers. For the poor consumers, lower food prices mean considerable benefits because the poor typically spend one-half to three-quarters of their income on food. For net sellers of food, a drop in prices means a drop in income; their production also decreases. If the poor are basic subsistence farmers, an increase in food supplies would have virtually no immediate effect. It is worth adding that an increase in the domestic production of a traded food, typical of a drive toward self-sufficiency, will automatically be offset by reductions in imports or increased exports. Prices will not change, and the only beneficiaries of a self-sufficiency policy are farmers who produce a surplus. Clearly, then, self-sufficiency will not necessarily lead to food security.

Transitory Food Insecurity

Magnitude of the Problem

Unless one is referring to a specific famine it is difficult to determine the number of people who experience transitory food-security problems. Even for a famine, enumeration is difficult. On the other hand, it is well known that international prices for many major commodities have become increasingly unstable during the 1970s, exchange rates are unstable, and agricultural production continues to be unstable in many regions of the world.²

The instability in prices and export earnings during the 1970s would have been translated into fluctuations in income of many urban and rural households in developing countries, particularly in export sectors. Yet, aggregate data usually hide much of the variability in food-security status of households within a country. For example, despite stable national income, food production and food consumption in India in 1968-70 survey data of per capita income and expenditure of four thousand rural households showed considerable year-to-year instability. Nearly one-half the households surveyed experienced at least one year in which their income fell below 70 percent of their three-year average.

2. For example, between 1968 and 1978, the coefficients of variation of international prices ranged from about 20 percent for maize to 30 percent for wheat and 35 percent for rice. The coefficient of variation of export earnings in developing countries—an indicator of a country's ability to import food—was about 15 percent, almost double the instability of export earnings in industrial countries. Variability in domestic production of cereal crops was very high during this period, with the coefficients of variation in the developing countries averaging 18 percent for wheat, 14 percent for maize, and 8 percent for rice. On the other hand, at the global level the coefficients of variation were 5 percent, 4 percent, and 3 percent, respectively, for wheat, maize, and rice.

Famines are the most severe form of transitory food insecurity. Famines have several causes, including wars, floods, crop failures, the loss of purchasing power by groups of households, and—sometimes, but not always—high food prices. A decline in the general availability of food is not necessarily a primary cause of famines. Indeed, by paying excessive attention to changes in aggregate food availability, governments and other organizations have sometimes failed to recognize the other causes of famine.

Loss of real income better explains why famines occur and who is hurt by them. Typically, victims belong to one or several of the following groups: (1) small farmers or tenants whose crops failed and who cannot find other employment in agriculture; (2) landless agricultural workers who lose their jobs when agricultural production declines or who face a rapid rise in food prices when their wages are stagnant or falling; (3) other rural workers affected by a drop in real income in the famine regions; and (4) pastoralists who normally get most of their income by selling their animals. Their herds may be ravaged by the drought itself, or animal prices may collapse.

Famines can occur during economic booms or slumps. In Bengal in 1943 the increase in food demand, fueled by gains in urban income, inflated food prices faster than the growth of rural wages. In Ethiopia, by contrast, a slump (caused partly by the 1974 drought) reduced the demand for food even as food supplies declined. Consequently, prices barely rose.

Supply problems, such as those that occur in times of war, can aggravate a famine. Famines, however, happen even when food grain markets are working well. In several famines local food prices barely rose, and food was continuously available at those prices. But the victims could not buy food. They did not have the income. This situation demonstrates the need to focus relief work on any group whose real income falls.

Policy Options

Governments that do not prevent transitory food insecurity risk jeopardizing national security. Risks can be reduced by following policies that promote stability in the domestic supply and price of staple foods and following policies that provide vulnerable groups with the financial means to buy enough food. These policies, however, must be determined with a clear assessment of the expected costs and benefits. For most countries, the surest and probably the cheapest way to achieve price stability is through international trade. Imports or exports can offset instability in domestic production almost automatically.

Some governments prefer to maintain buffer stocks, although this tends to be cost-ineffective for stabilizing prices and supplies. Costs are high because buffer stocks imply low use of stored grains, high storage losses, and high interest charges on capital tied up in inventories.

Even with perfect markets and stable prices, the food-insecure can still lack the purchasing power to buy food. Thus, these groups must be quickly identified and provided with payments in cash or in kind, or if cost-effective work programs are feasible—given temporary employment. Moreover, when

resources are scarce, special programs are needed to preserve the nutritional status of children under five years and pregnant and lactating mothers.

National Security Implications

The Main Issues

As previously stated, chronic and transitory food insecurities are still widespread and in some regions and countries represents massive problems for households and national governments. The critical points are that (1) Food insecurity is basically lack of purchasing power, which means poverty. Alleviating poverty will alleviate food insecurity. (2) Food insecurity must be tackled mainly on the demand side by improving economic growth, employment, income distribution, and reducing instability in food prices and real incomes.

Importance of Policy

Food insecurity can be addressed successfully in most cases. Its solution need not be excessively costly if carefully planned, even if solutions take time and require both short- and long-term strategies. Many developed countries have formulated policies that have eliminated food security as a major issue. For example, Japan imports about two-thirds of its total grain requirements. Japan is by no means self-sufficient, but it is food secure by virtue of its rapid economic growth led by an active trade regime and high rate of technological development. This has resulted in high levels of employment and an income distribution which ensures food security for most of the population. While Japan is not necessarily the appropriate model for developing countries, South Korea, Malaysia, and Indonesia in the same region confirm that sound economic policies can result in human capital development and strong growth. Thus, it is clear that economies with strong growth need not suffer national food-security problems.

It is sound macroeconomic and agricultural policies that are likely to lead to improvements in food security. Ill-conceived policies that lead to price distortions, such as heavily subsidized consumer prices and lack of incentives to food producers, can be harmful to national security in two ways. First, they may cause a reduction in the rate of growth in the economy, resulting in lower national income. Second, the lower level of national income will ultimately result in the removal of consumer subsidies, perhaps with violent social unrest. This scenario has played itself out in Egypt and Tunisia when consumer food subsidies were sharply reduced.

Effective policies are fundamental for national security. Food insecurity, hunger, low incomes, and poor income distribution reflect ineffective policy. Policy can, however, be corrected. If it is not, hunger can have serious detrimental effects on human capital through a deterioration in cognitive skills and intellectual development. The deterioration in such resources can substantially slow the rate of economic progress and thus become a national security concern.